

**THE SOUTH CAROLINA OFFICE OF  
REGULATORY STAFF**

**DIRECT TESTIMONY**

**OF**

**Mark W. Crisp, PE**

**SEPTEMBER 22, 2009**



**DOCKET NO: 2009-293-E**

**UPDATE OF CONSTRUCTION PROGRESS AND  
REQUEST FOR UPDATES AND REVISIONS TO  
SCHEDULES RELATED TO THE CONSTRUCTION  
OF A NUCLEAR BASE LOAD GENERATION  
FACILITY AT JENKINSVILLE, SOUTH CAROLINA**

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23

**DIRECT TESTIMONY OF**

**MARK W. CRISP, PE**

**FOR**

**THE SOUTH CAROLINA OFFICE OF REGULATORY STAFF**

**DOCKET NO: 2009-293-E**

**UPDATE OF CONSTRUCTION PROGRESS AND REQUEST FOR UPDATES**

**AND REVISIONS TO SCHEDULES RELATED TO THE CONSTRUCTION OF**

**A NUCLEAR BASE LOAD GENERATION FACILITY AT JENKINSVILLE,**

**SOUTH CAROLINA**

**Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.**

**A.** My name is Mark W. Crisp. I am the Managing Consultant of C. H. Guernsey & Company (“C. H. Guernsey”). My business address is 1100 Circle 75 Parkway, Suite 1530, Atlanta, Georgia 30339.

**Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

**A.** I graduated from the Georgia Institute of Technology (Ga. Tech) in 1978 with a degree in Civil Engineering. In addition to my studies in Civil Engineering, I have completed post graduate studies in Finance and Accounting and career development programs. Following completion of my formal education, I was employed seventeen years by Arkansas Power & Light (Middle South Utilities now Entergy – Arkansas) and Georgia Power Company/Southern Company. I completed assignments in the planning, siting, design, construction, and

1 operations of nuclear, coal and hydroelectric generating plants. In addition to my  
2 utility operating experience, I was also responsible for technical due diligence on  
3 Southern Company's International Acquisition Team. In this capacity, I was  
4 responsible for evaluating all operating, environmental, staffing and operational  
5 aspects of power generating facilities worldwide that were the focus of Southern  
6 Company's acquisition strategy.

7 Following my employment in the utility industry, I became a consultant providing  
8 services to electric, water, wastewater and natural gas utilities and regulatory  
9 bodies throughout the continental US, Hawaii, Alaska and internationally. I  
10 continue to provide these services and hold the position of Managing Consultant  
11 at C. H. Guernsey where I am responsible for overall operations of the Atlanta  
12 Regional Office. In addition to my resume in the Appendix, I attached a list of  
13 major electric generating facilities I have been involved with over my career (See  
14 Appendix Exhibits 1 and 2). I am a registered professional engineer licensed in  
15 Georgia and Florida.

16 **Q. WHAT IS THE NATURE OF YOUR BUSINESS?**

17 **A.** C. H. Guernsey is a multi-disciplined engineering, environmental and consulting  
18 firm with offices in Georgia; Oklahoma; Florida; Alabama; Texas; Alaska; and  
19 affiliate offices in Washington D.C., and Washington. We specialize in  
20 engineering design and consulting services to the electric, natural gas, water and  
21 wastewater industries. C. H. Guernsey has completed engagements with utilities  
22 or regulatory bodies in all 50 states, Canada, Mexico, South America, Europe,  
23 Africa, the Pacific Rim and India. Our expertise includes utility resource

1 planning, site selection, contract negotiations and design, construction and  
2 operations support. C. H. Guernsey also provides consulting services in power  
3 purchases, transmission analysis and power plant, substation and distribution  
4 design.

5 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC**  
6 **SERVICE COMMISSION OF SOUTH CAROLINA (“COMMISSION”)?**

7 **A.** Yes, I was the lead consultant on the panel of experts providing testimony on  
8 behalf of the South Carolina Office of Regulatory Staff (“ORS”) before the  
9 Commission in the South Carolina Electric & Gas Company (“SCE&G”) Base  
10 Load Hearing in Docket No. 2008-196-E. I have also testified before several other  
11 state commissions, the Federal Energy Regulatory Commission (“FERC”), the  
12 United States Congress, and several Federal Courts in the capacity of an expert  
13 witness.

14 **Q. WHAT IS C. H. GUERNSEY’S ASSIGNMENT IN THIS PROCEEDING?**

15 **A.** C. H. Guernsey’s assignment is to assist ORS in its monitoring and tracking of the  
16 construction schedule and budget related to SCE&G’s V. C. Summer Units 2 & 3.

17 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
18 **PROCEEDING?**

19 **A.** The purpose of my testimony is to provide a technical review of SCE&G’s  
20 request for updates and revisions to its construction schedule for V. C. Summer  
21 Units 2 & 3. My testimony is filed on behalf of ORS.

22 **Q. PLEASE DESCRIBE SCE&G’S REQUEST AND ITS IMPLICATIONS.**

1     A.     SCE&G has requested that the Milestone Schedule approved in Commission  
2           Order 2009-104(A) (“the BLRA Order”) be modified to that shown in SCE&G  
3           Exhibit 2 in the current docket. The modifications are being requested for two  
4           separate but related reasons.

5           First, SCE&G received the Performance Measurement Baseline Schedule  
6           (“PMBS”) from the Engineering, Procurement and Construction (“EPC”)   
7           consortium. The consortium consists of the Westinghouse Electric Company, the  
8           Shaw Group and Stone & Webster, Inc. The PMBS represents significant  
9           refinement in site-specific and non site-specific construction activities, including  
10          vendor negotiated equipment procurement and delivery dates. SCE&G integrated  
11          this information into the Milestone Schedule and further refined it resulting in an  
12          updated Milestone Schedule with 146 milestones. None of the original milestones  
13          are omitted from this revision. Instead, some of the original milestones were  
14          unbundled to create additional milestones. By expanding the milestones, it will  
15          provide additional clarity and tracking capability. These revisions to the  
16          Milestone Schedule do not impact or change the Commercial Operation Dates  
17          (“COD”) of April 2016 and January 2019, meaning Units 2 & 3 are still on  
18          schedule.

19          Second, SCE&G has new completion dates for several activities different from  
20          those established in the schedule approved in the BLRA Order. These revisions  
21          neither cause the original COD to change, nor do the changes in the schedule  
22          dates impact the approved capital cost established in the BLRA Order. Instead,  
23          there should be a pricing benefit in moving some of the milestones. Moving

certain milestones out in time will improve the efficiency of construction by eliminating the need to store or warehouse certain equipment. The pieces of equipment with new delivery dates can be off-loaded and directly moved into the installation phase without the necessity and risk of on-site storage.

**Q. ARE THERE ANY OTHER MODIFICATIONS REQUESTED?**

**A.** Yes. In addition to the modifications to the Milestone Schedule requested by SCE&G, SCE&G has also requested a modification of the Commission approved cumulative project cash flow referred to in the BLRA Order as Exhibit F. As a result of the integration of the PMBS with the Project Cash Flow, there have been some adjustments to the cash flow in terms of timing and the sequencing of construction activities. The shifting of some of the milestones requires that the cash flow associated with those milestones also be shifted to account for the timing of cash payments. SCE&G has revised the Project Cash Flow in Exhibit 3 of its request. The revision to the cash flow does not change the overall capital cost of \$4.5 Billion, net of AFUDC.

**Q. HAVE YOU REVIEWED THE PMBS?**

**A.** Yes, I was able to view the PMBS beginning in August, 2009. Since then, I have spent considerable time reviewing various components of the schedule and comparing activity completion dates with the dates included in the Milestone Schedule.

**Q. WILL THE COD FOR UNITS 2 & 3 BE NEGATIVELY IMPACTED IF THE COMMISSION APPROVES SCE&G'S REQUEST TO MODIFY THE MILESTONE SCHEDULE?**





1        **NEW REACTORS, NUCLEAR REGULATORY COMMISSION (“NRC”)**  
2        **ADDRESSED TO WESTINGHOUSE ELECTRIC COMPANY (“WEC”),**  
3        **AP 1000 LICENSING AND CUSTOMERS INTERFACE, CONCERNING**  
4        **THE WEC’S FAILURE TO “PROVIDE THE NECESSARY DESIGN**  
5        **INFORMATION IN A TIMELY MANNER AND AS A RESULT HAS**  
6        **FURTHER IMPACTED THE REVIEW SCHEDULE?”**

7        **A.**     Yes, I am.

8        **Q.**     **IS THIS LETTER CAUSE FOR CONCERN FOR SCHEDULE DELAYS IN**  
9        **THE CONSTRUCTION OF UNITS 2 & 3?**

10      **A.**     The implications identified by the NRC of WEC’s failure to meet certain filing  
11      deadlines is a concern of ORS. In the Company’s 2<sup>nd</sup> Quarterly Construction  
12      Update for quarter ending June 30, 2009, the Company provides a discussion of  
13      the commitment of both WEC and SCE&G to address the concerns of the NRC in  
14      order to facilitate the issuance of the COL by July, 2011.

15      **Q.**     **HOW COULD THE NRC LETTER IMPACT THE CONSTRUCTION OF**  
16      **UNITS 2 & 3?**

17      **A.**     Although the letter does not directly involve or address Units 2 & 3, there is the  
18      possibility of a schedule delay if WEC does not satisfy the NRC’s request for  
19      information.

20      **Q.**     **IS IT YOUR POSITION THAT THIS LETTER FROM THE NRC IS**  
21      **SIGNIFICANT?**

22      **A.**     Yes.

1   **Q.    WHAT IS YOUR RECOMMENDATION REGARDING THE REQUEST**  
2       **BY SCE&G TO UPDATE THE MILESTONE SCHEDULE?**

3   **A.    I recommend the Commission approve the request of SCE&G and that the**  
4       **Milestone Schedule be “reset” as set forth in the Company’s Exhibit 2. I also**  
5       **recommend the Commission accept the changes to the Construction Expenditures,**  
6       **Exhibit 3 of SCE&G’s filing and that both these documents become the formally**  
7       **approved Milestone Schedule and Construction Expenditures documents to**  
8       **replace the same documents in the BLRA Order.**

9   **Q.    DOES THIS CONCLUDE YOUR TESTIMONY?**

10  **A.    Yes it does.**

**EDUCATION:**

MBA, Finance & Accounting, University of Arkansas at Little Rock, 1980  
BS, Civil Engineering, Georgia Institute of Technology, 1978

**REGISTRATIONS:**

Registered Professional Engineer – Georgia  
Registered Professional Engineer – Florida

**PROFESSIONAL ACTIVITIES / HONORS:**

Member: American Society of Civil Engineers; American Water Works Association; Water Environment Federation; Rural Water Association; National Hydropower Association

**EXPERIENCE RECORD:**

**2001 - Present    Managing Consultant**

Areas of responsibility include all aspects of Utility Management including operations, site selection, permitting, design and construction. Specific areas of expertise include rate designs and cost of service studies, development of acquisition strategies, mergers, municipalization, planning and system forecasting for capital and O&M budgets.

Mr. Crisp has over thirty years of experience in the utility and power sectors. He has been involved in a significant number of domestic and international utility acquisitions, "green field" developments and regulatory reviews for State and Federal regulatory bodies. Mr. Crisp has provided consulting services to electric, water supply and wastewater utilities, local, state, federal and foreign governments, environmental protection organizations, domestic and international developers, electric utilities, and irrigation districts.

Mr. Crisp and his Team of consulting experts have recently completed engagements with the Georgia Public Service Commission reviewing the last 2 Integrated Resource Plans submitted by the Georgia Power Company. Both of these IRP's included provision for adding nuclear resources to the generation fleet. The latest of these IRP's (2007) will be the basis for the construction of the Units 3&4 at Plant Vogtle.

Mr. Crisp currently manages projects ranging in size from \$10K to multi-million dollar regulatory and litigation efforts as well as his daily responsibilities to lead the growth of C. H. Guernsey & Co.'s east coast operations.

**APPENDIX EXHIBIT 1**  
**MARK W. CRISP**  
**MANAGING CONSULTANT & ENGAGEMENT DIRECTOR**

Page 2 of 2

---

**1978 - 2001      Various Positions leading to Senior Project Manager**

Mr. Crisp directed the Utility Consulting services function for a major utility consulting firm based in Marietta, Georgia, and was responsible for developing extensive capabilities in financial and economic decision-making, pro forma analysis, and acquisition strategies to support utility management requirements. Mr. Crisp evaluated complex technical issues related to the electric utility, environmental and water utility markets and rendered them into a specific set of logical and responsive recommendations.

Mr. Crisp has been integrally involved in the privatization of utilities on military bases since the issuance of DRID #9. His experience includes testimony before the Office of Secretary of Defense, numerous industry focus meetings and the development of military utility inventories, asset valuations, and acquisitions analysis.

In addition to military privatizations, Mr. Crisp has completed a number of private sector privatizations and assisted utilities with "re-engineering" their utility to avoid privatization, cost of service analysis, rate design and O&M budget evaluations.

Mr. Crisp spent nearly twenty years with the Southern Company in all phases of that Utilities operation. During his tenure with Southern he completed major assignments including design and construction activities at Plant Vogtle Nuclear. These included such critical areas as piping and pipe hanger reviews, NRC license compliance and reporting, as well as craft management during construction and start-up. Prior to joining Southern Company, Mr. Crisp was employed with Arkansas Power Light, the predecessor to Entergy - Arkansas. In his capacity at AP&L, Mr. Crisp was involved in numerous State and NRC promulgated outage reviews of Arkansas Nuclear One ("ANO") following the Three Mile Island incident.

**Expert Witness and Testimony**

Georgia Public Service Commission

Maryland Public Service Commission

Federal Energy Regulatory Commission

United States Congress

Federal District Court of Washington D.C.

Federal District Court in the Northern District of Georgia

Federal District Court in the Northern District of Alabama

US Court of Appeals - 11th Circuit

## **Mark W. Crisp**

### **Power Plant Experience**

#### **Nuclear Power Generating Facilities**

Plant Vogtle – Georgia Power Company (Southern Nuclear)  
Plant Hatch – Georgia Power Company (Southern Nuclear)  
Plant Farley – Alabama Power Company (Southern Nuclear)  
North Anna Power Station – Dominion Resources  
Bellefonte – Tennessee Valley Authority

#### **Coal-fired Generating Facilities**

Plant Bowen – Georgia Power Company  
Plant Branch – Georgia Power Company  
Plant Hammond – Georgia Power Company  
Plant McDonough – Georgia Power Company  
Plant Mitchell – Georgia Power Company  
Colbun – Chile S.A.  
Mejionelles – Chile S.A.  
Puerto Rican Electric Power Authority San Juan, Puerto Rico

#### **Hydro-electric Generating Facilities**

Wallace Dam – Georgia Power Company  
Sinclair Dam – Georgia Power Company  
Rocky Mountain Pumped Storage Project – Georgia Power Company  
Bartlett's Ferry Dam – Georgia Power Company  
Oliver Dam – Georgia Power Company  
Jackson Dam – Georgia Power Company  
Allatoona Dam – U.S. Army Corps of Engineers  
Buford Dam – U.S. Army Corps of Engineers  
Carter's Dam – U.S. Army Corps of Engineers  
Hartwell Dam – U.S. Army Corps of Engineers  
Richard Russell Pumped Storage Project – U.S. Army Corps of Engineers  
Strom Thurmond Dam – U.S. Army Corps of Engineers  
West Point Dam – U.S. Army Corps of Engineers  
W. F George Dam – U.S. Army Corps of Engineers  
Jim Woodruff Dam – U.S. Army Corps of Engineers  
Wolf Creek Dam – U.S. Army Corps of Engineers  
Center Hill Dam – U.S. Army Corps of Engineers  
Texoma Dam – U.S. Army Corps of Engineers  
Dennison Dam – U.S. Army Corps of Engineers  
Amistad Dam – International Boundary Waters Commission  
Falcon Dam – International Boundary Waters Commission

**BEFORE**  
**THE PUBLIC SERVICE COMMISSION**  
**OF SOUTH CAROLINA**  
**DOCKET NO. 2009-293-E**

IN RE:    South Carolina Electric & Gas Company's    )  
          Update of Construction Progress and Request    )  
          for Updates and Revisions to Schedules        )    **CERTIFICATE OF**  
          Related to the Construction of a Nuclear Base    )    **SERVICE**  
          Load Generation Facility at Jenkinsville,        )  
          South Carolina                                        )

This is to certify that I, Chrystal L. Morgan, have this date served one (1) copy of the **DIRECT TESTIMONY AND EXHIBITS OF MARK W. CRISP, PE** in the above-referenced matter to the person(s) named below by causing said copy to be deposited in the United States Postal Service, first class postage prepaid and affixed thereto, and addressed as shown below:

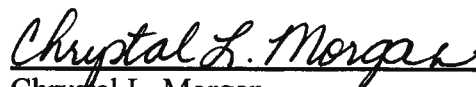
Belton T. Zeigler, Esquire  
Haynsworth Sinkler Boyd, PA  
Post Office Box 11889  
Columbia, SC, 29211

K. Chad Burgess, Senior Counsel  
South Carolina Electric & Gas Company  
1426 Main Street, MC 130  
Columbia, SC, 29201

Robert Guild, Esquire  
314 Pall Mall Street  
Columbia, SC, 29201

Scott Elliott, Esquire  
Elliott & Elliott, P.A.  
721 Olive Street  
Columbia, SC, 29205

Tom Clements  
Friends of the Earth  
1112 Florence Street  
Columbia, SC, 292201

  
Chrystal L. Morgan

September 22, 2009  
Columbia, South Carolina